

## REMARKS

Claims 1 through 32 were presented for examination. Claims 1, 11 and, 22 have been amended to include the ligand to phosphite molar ratio of about 50:1 to about 1000:1. The basis for these amendments is found in the specification at the bottom of page 6, specifically at lines 29-32. New claims 33-35 have the same basis and recite the preferred ligand to phosphite molar ratio of about 100:1 to about 300:1.

Claims 10, 15, 21, 22, and 23 were objected to or rejected under Section 112 for various reasons. The Applicants assert that the amendments that had been made to those claims overcome the objection and rejection.

Claims 1 through 32 were rejected under Section 103(a) as being unpatentable over Xue for the reasons of record given in the previous office action. The Applicants assert that the amendment of all of the independent claims to include the limitation of a ligand:phosphite molar ratio of from about 50:1 to about 1000:1 overcomes this rejection.

In the most recent office action, the Examiner stated with regard to the previous Rule 132 Declaration that "the Declaration merely states an opinion which could easily be tested in a laboratory." The Applicants hereby submit the attached Declaration under Rule 132 from David S. Brown which describes comparative experiments that were carried out under his direction. The purpose of these experiments was to compare the results recorded by Xue in the article to the results achieved according to the present invention (entry 4 in the attached table) and also to the process of the present invention carried out with the ligand:phosphite/phosphine ratio of Xue (entry 3) and the results typically achieved using a different commercial process which produces good product (entry 5).

The Declaration states that the ligand:phosphine ratio used in Examples 6 and 3 (entries 1 and 2) of the Xue article were both 1:1 and that the ligand:phosphite ratio used in the comparative example of the present invention (entry 3) was also 1:1. The Declaration also states that the example of the present invention (entry 4) was carried out with a ligand:phosphite ratio of 50:1 which is the lower end of the range which has been added to all of the independent claims. The Declaration states that the experiments which are reported in entries 3 and 4 were carried out according to the procedure described in Example 1 of this patent application except that the amounts of triethyl phosphite and o- dihydrocarbylphosphinobenzoic acid used were changed so that the above-described ratios could be achieved.

With respect to the results, the Declaration states that the data in the table shows that the use of a small amount of triethylphosphite compared to the amount of the ligand

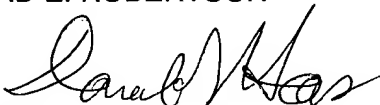
(entry 4) achieves a high product quality (as measured by 1-hexene purity) that is comparable to the results achieved in the commercial process (entry 5)--98.7 and 98.6 weight percent, respectively. The Declaration also states that the data shows that the use of a larger amount of triethylphosphite compared to the amount of ligand, as in the examples from the Xue article (entries 1 and 2), and the comparative triethylphosphite example (entry 3) produce a less desirable product quality of 92.4, 82.57 and 91.5 weight percent, respectively.

Further, the Declaration states that the data shows that the use of a small amount of the triethylphosphite compared to the amount of the ligand (entry 4) gives a more advantageous product distribution (less 1-butene and more total C<sub>6-10+</sub>) and that this is apparent by comparing the results for entry 4 against the results for entries 1 and 2 and for entry 3 wherein entry 4 produces only 26.9 weight percent of 1-butene and in entries 1 through 3, 49.45, 86.41, and 71 weight percent, respectively, of 1-butene was produced. Further, in entry 4, a total of 73.1 weight percent of C<sub>6-10+</sub> was produced, whereas in entries 1 through 3, only 50.55, 18.59, and 29 weight percent, respectively, of the C<sub>6-10+</sub> were produced.

The Applicants assert that the data in the Declaration clearly shows that operation within the scope of the claims as amended produces the desired product whereas this desired product cannot be achieved according to the teachings of the Xue article. Therefore, the Applicants assert that the amended claims are not obvious in view of Xue and respectfully request that the rejection be withdrawn and an early notice of allowance be issued.

Respectfully submitted,

DAVID S. BROWN and  
RICHARD E. ROBERTSON

By 

Their Attorney, Donald F. Haas  
Registration No. 26,177  
(713) 241-3356

P. O. Box 2463  
Houston, Texas 77252-2463